III. REMARKS

Status of the Claims

Claim 2-7, and 10-18 are submitted for reconsideration.

Summary of the Office Action

Claims 2-7 and 10-18 stand rejected under 35USC103(a) on the basis of the cited reference Meador, et al, U.S. Patent No. 5,638,425 in view of the reference McNutt, U.S. Patent No. 5,649,153. The Examiner is respectfully requested to reconsider his rejection in view of the following remarks.

The Invention

As described in amended claim 18, a method is described for recognizing inputs and selecting matching words. Candidate matching words are presented to the user for selection in an order of preference based on a confidence value which is further weighted by a probability of use, cumulatively, the "overall probability of use". The probability of use is calculated based on prior use of the presented word. In particular the probability value is based on a ratio of the number of times a candidate term was used over a certain period of time to the total number of times voice recognition has been used over the same period. Neither of the cited references disclose such a method.

Discussion of the Cited References

The Examiner as cited the reference Meador as the primary support for the rejection based on obviousness. The reference Meador discloses an automated directory assistance system using a word recognition and phoneme processing method. The method

comprises the usage of confidence values during speech recognition. In particular, as can be seen from Figure 5 for speech recognition word recognition (step 98) and phoneme recognition (step 100) are used in parallel. Confidence levels or values are reported at steps 102 and 104 and the confidence levels obtained on the basis of phoneme recognition and word recognition are used for comparing and selecting recognized word candidates. A composite probability level is determined using word and phoneme recognition and their associated probability values.

This is clearly described in the reference Meador, at column 4, lines 1-20:

> "Another approach is to generate a phoneme string or a plurality of phoneme strings for each of the candidate words. Each of the phoneme strings has its own probability value. A combined probability value for each of the candidate words and their associated phonemes can be calculated using a predetermined function so that a combined probability is calculated for each of the phonemes and its respective candidate word. The combination of candidate word and associated phoneme having the highest combined probability value is selected to be sent to the user or to be used to access a database to obtain associated information to be sent to the user. At any point in this process, the probability level can be checked against a threshold to determine if the value is sufficient for use or if additional selection must be carried out to find a more probable prospect for the correct word with respect to that uttered by the user. It has been determined that the combination of candidate word probability and phoneme string probability results in the most reliable prospect for the correct word with respect to that uttered by the user."

According to the subject invention, as described in claim 18, a composite probability value is determined for a candidate term, is calculated based on its base probability value and a further factor representing the history of use of the candidate term over a period of time. There is no mention in the reference

Meador of a factor based on a use frequency of a certain record relative to a use frequency of the system.

For example, in the system of the subject application, if the system has been used 40 times in the last 30 days, and a certain record indicated as, "summer training", has been used 26 times during these last 30 days, whereas another record indicated as, Mr. "Sommer", has been used only once in these last 30 days the probability value assigned to the data record identified by "summer training" would be 0.65 whereas the confidence value assigned to the record indicated by "Sommer" would be 0.025. Consequently, if a certain utterance input by a user would lead to an identification of data records indicated by "summer…", and "Sommer", the data record that matches the former term would be selected even if the confidence value of both identified terms "summer..." and "Sommer" are nearly the same because of the probability value assigned to the data record matching "summer training".

After completing the summer training, let's say two months later the system has been used for example 80 times during the recent last 30 days whereas the specific data record matching "summer training" has never been used any more during these last 30 days while the data record matching "Sommer" has been used 8 times, the probability values of the data records are now 0 and 0.1, respectively.

Therefore, after completing the summer training the system recognizes that the user thereof must likely want to refer to the data record matching "Sommer" if an utterance similar to "summer" or "Sommer" is input by a user.

The use of a probability value 95, as defined in claim 18 and explained by means of the above example is neither disclosed nor suggested by Meador. The disclosure of the reference Meador does not disclose the use of a base probability value for a candidate term which is converted into a composite overall probability by using a factor which is based on the history of use of the candidate term over a period of time.

In order to remedy the above deficiency in the disclosure of Meador, the Examiner cites the reference McNutt. The reference McNutt discloses a cache management system for dynamically switching between record caching mode and track caching mode. Statistics are used to decide which mode of caching is to be used for a particular record. The statistics involve the number of accesses of a record for all time, see column 5, line 63 to column 6, line 3.

Although McNutt discloses that it is possible to use statistics for controlling a cache management system, he is completely silent about a probability value used in the selection of a candidate term in a voice recognition system, as defined in the claim 18 of this application. In addition the system of McNutt bears no relationship to the disclosure of Meador.

Applicant submits that a ordinary person skilled in the art, who tries to improve a speech recognition system, as disclosed by Meador, will never rely on the teaching of McNutt, since McNutt is directed to a cache management system, i.e. with a technology completely different from speech recognition.

Thus, the system of this application provides a method in which a composite probability value is used that is based on the

historical usage of words by a user of a speech recognition system. Therefore, the probability value according to the present invention will be automatically adapted to a new user or to a new behavior/manner of usage, if the user or his/her habit changes. The historical use factor is described in claim 18, as follows:

> "determining data records that match the identified terms as well as probability values assigned thereto, wherein each of said probability values is calculated for each stored data record as a ratio of the number of times this data record has been used during a certain period in the recent past to the total number of times all the data records have been used during this certain period so as to describe the probability of the data record being used again;"

The Examiner's states an opinion that the limitation of "during a certain period in the recent past to during this certain period to calculate ratio" has no weight in the ratio. The point of the Examiner' comment in this regard is unclear. It cannot be denied that the number of uses of a particular candidate term will vary over time as will the overall use of the system. The numbers used in obtaining the above ratio will, therefore, continuously change depending on the period of time selected. The period of the recent past is very important for determining the probability value since the usage of a certain record can be regarded as a function of time. The same is true for the overall usage of the system.

As indicated in the example above, a user of the system may attend a summer training for one or two months in the summer and may use a data record matching "summer training" nearly every day during the attendance of this training. Thereafter, he/she do not need the related data record for the next time any more

and therefore the probability value assigned to this data record will decrease as time goes by until the probability value is 0.

Therefore it is clear that the certain period in the recent past is an important feature for determining the ratio, irrespective of, as the examiner indicates, the period being mathmatically canceled when calculating the ratio. Therefore, it should be clear that the reference to a certain period in the recent past, to a certain time window is important for the present invention, since the frequency of use of a certain data record as well as the frequency of use of the system is not constant with regard to time.

The Issue of Obviousness

According to basic tenets of patent law, in order to support an obviousness rejection, there must be some suggestion of the desirability of making the modification, aside from the subject application. The claimed invention must be considered as a whole and the references must suggest the desirability and thus the obviousness of making the modification, the references must be viewed without the benefit of hindsight. (See MPEP sections 706.02(a) and 2141. Applicant submits that the modification of the teachings of Meador in combination with the teaching of McNutt in order to obtain the invention, as described in the claims under consideration, would not have been obvious to one skilled in the art. There is no indication that such a modification would be desirable or even possible.

In addition, there is no reason suggested in either of the cited references for the combination of references, skilled artisans in either of the fields of the cited references would not necessarily be aware of the others technology. The only link

between the two is the subject application. It is well known that a combination of references must include some indication of the desirability of the combination. There is none in this instance.

The court admonishes in <u>In re Fritch, 972F.2d1260</u> as follow:

> "It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

The Examiner gives no explanation as to how or why the teaching of Meador might be combined with the teaching of McNutt. There is nothing in either reference that would suggest such a combination. It should be noted that, even if such a combination could be rationally made, the combined teaching would not render the invention of this application obvious.
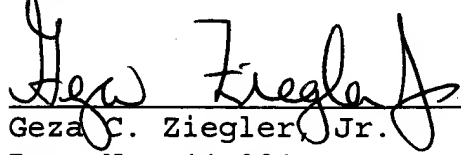
The above arguments are equally applicable to the rejected dependent claims.

In view of the arguments stated above, Applicant submits that the claims under consideration contain patentable subject matter and favorable action by the Examiner is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of $420.00 is enclosed for a two month extension of time. The Commissioner is hereby authorized to

charge payment for any fees associated with this communication
or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

Geza C. Ziegler Jr. (signature)

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